IN THE SPECIFICATION:

Page 6, amend paragraph 1 as follows:

B1

In the discharging surface treatment method according to a first aspect of this invention, ~~a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed ferrous family metal powder or non-ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned at a temperature at which the ferrous family or non-ferrous metal powder~~ a powder mixture is formed, comprising as one component: (a) a ferrous-family metal powder or a non-ferrous-family metal powder, wherein each of the metal powders can be formed of one or plural metals; and, as a second component, (b) one or a plurality of metal carbides, wherein the elemental metal of the carbide or carbides belongs to the IVa, Va or VIa families in the Periodic Table; the non-ferrous-family metal powder having the same composition as the treatment target; and heating the powder mixture to a temperature at which the component (a) starts to ~~elute~~ melt to form an electrode serving as a discharge processing electrode, and the electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment are altered according to the characteristics of the treatment target material.

Page 6, amend paragraph 2 as follows:

B2

In the discharging surface treatment method according to a second aspect of this invention, ~~a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed ferrous family metal powder or non ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, the powder mix and this is compressed and molded, and then burned at a temperature at which the ferrous family~~

~~or non-ferrous metal powder~~ a powder mixture is formed, comprising as one component: (a) a ferrous-family metal powder or a non-ferrous-family metal powder, wherein each of the metal powders can be formed of one or plural metals; and, as a second component, (b) one or a plurality of metal carbides, wherein the elemental metal of the carbide or carbides belongs to the IVa, Va or VIa families in the Periodic Table; the non-ferrous-family metal powder having the same composition as the treatment target; and heating the powder mixture to a temperature at which the component (a) starts to ~~elute~~ melt to form an electrode serving as a discharge processing electrode, and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment are altered at least once according to the characteristics of the treatment target material.

B2

Page 7, amend paragraph 1 as follows:

B3

In the discharging surface treatment method according to a third aspect of this invention, ~~a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed ferrous family metal powder or non ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded and then burned at a temperature at which the ferrous family or non ferrous metal powder~~ a powder mixture is formed, comprising as one component: (a) a ferrous-family metal powder or a non-ferrous-family metal powder, wherein each of the metal powders can be formed of one or plural metals; and, as a second component, (b) one or a plurality of metal carbides, wherein the elemental metal of the carbide or carbides belongs to the IVa, Va or VIa families in the Periodic Table; the non-ferrous-family metal power having the same composition as the treatment target; and heating the powder mixture to a temperature at which the component (a) starts to ~~elute~~ melt to form an electrode serving as a discharge processing electrode, and the electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment are altered

according to the characteristics of the treatment target material, while the electrical conditions at the time when the hard coat film that has been formed is subjected to a discharging surface treatment are altered at least once according to the characteristics of the treatment target material.

Page 9, amend paragraph 3 as follows:

In the discharging surface treatment device according to a tenth aspect of this invention, ~~a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed ferrous family metal powder or non ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned at a temperature at which the ferrous family or non ferrous metal powder~~ a powder mixture is formed, comprising as one component: (a) a ferrous-family metal powder or a non-ferrous-family metal powder, wherein each of the metal powders can be formed of one or plural metals; and, as a second component, (b) one or a plurality of metal carbides, wherein the elemental metal of the carbide or carbides belongs to the IVa, Va or VIa families in the Periodic Table; the non-ferrous-family metal powder having the same composition as the treatment target; and heating the powder mixture to a temperature at which the component (a) starts to ~~elute~~ melt to form an electrode serving as a discharge processing electrode. Moreover, the above-mentioned device is provided with a switching unit which alters the electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment according to the characteristics of the treatment target material.

Page 10, amend paragraph 1 as follows:

In the discharging surface treatment device according to an eleventh aspect of this invention, ~~a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed~~

~~ferrous-family metal powder or non-ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned at a temperature at which the ferrous-family or non-ferrous metal powder~~ a powder mixture is formed, comprising as one component: (a) a ferrous-family metal powder or a non-ferrous-family metal powder, wherein each of the metal powders can be formed of one or plural metals; and, as a second component, (b) one or a plurality of metal carbides, wherein the elemental metal of the carbide or carbides belongs to the IVa, Va or VIa families in the Periodic Table; the non-ferrous-family metal powder having the same composition as the treatment target; and heating the powder mixture to a temperature at which the component (a) starts to ~~elute~~ melt to form an electrode serving as a discharge processing electrode. Moreover, the device is provided with a switching unit which alters the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment at least once according to the characteristics of the treatment target material.

B5

Page 10, amend paragraph 2 as follows:

B6

In the discharging surface treatment device according to a twelfth aspect of this invention, ~~a powder that is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va and VIa families in the Periodic Table is mixed ferrous-family metal powder or non-ferrous metal powder having the same composition as the treatment target as a simple substance or a combination of a plurality of metals, and this is compressed and molded, and then burned at a temperature at which the ferrous-family or non-ferrous metal powder~~ a powder mixture is formed, comprising as one component: (a) a ferrous-family metal powder or a non-ferrous-family metal powder, wherein each of the metal powders can be formed of one or plural metals; and, as a second component, (b) one or a plurality of metal carbides, wherein the elemental metal of the carbide or carbides belongs to the IVa, Va or VIa families in the Periodic Table; the non-ferrous-family metal powder having the same composition as the treatment target; and heating the powder mixture to a temperature at which the component (a) starts to ~~elute~~ melt to form an electrode serving as a discharge processing

electrode. Moreover, the above-mentioned device is provided with a first switching unit which alters the electrical conditions at the time when the base member of the treatment target is directly subjected to a discharging surface treatment and the electrical conditions at the time when a hard coat film that has been formed is subjected to a discharging surface treatment according to the characteristics of the treatment target material, and a second switching unit which alters the electrical conditions at the time when the hard coat film that has been formed is subjected to a discharging surface treatment at least once according to the characteristics of the treatment target material.

B6

Page 21, amend paragraph 1 as follows:

B7

A method of manufacturing the discharge processing electrode 12 will now be explained. A powder ~~that~~ is mixed with a ferrous-family metal powder, or non-ferrous metal powder, as a simple substance or a combination of a plurality of metals, wherein the powder is formed by a simple substance or a combination of a plurality of carbides of metals belonging to the IVa, Va, and VIa families in the Periodic Table (for example, WC, TiC, TaC, etc.) ~~is mixed~~, and wherein the ferrous-family metal powder such as Fe, Co and Ni, or non-ferrous metal powder having the same composition as the treatment target (for example, Al alloy powder, etc.) ~~as a simple substance or in combination, and this~~, further wherein the powder mix is compressed and molded into a predetermined shape, thereby manufacturing a green compact electrode. Then, this is put into a vacuum furnace, etc., and the temperature inside the furnace is gradually increased so as to harden the green compact electrode to a degree, for example, approximately as hard as chalk so that it has sufficient strength to withstand a mechanical machining process and also is not hardened too much (this process is referred to as "~~preliminary~~ incomplete sintering process"). In this state, the ferrous-family metal such as Co starts to ~~elute to be buried in~~ melt and seep into gaps between carbides, thereby forming a so-called solid solution. In contrast, at contact portions between the carbides, although mutual bonding progresses, the bonding is weak because the ~~burning~~ temperature is comparatively low with the result that a main sintering process is not attained. The discharge processing electrode in this state, which has been subjected to the

B7 ~~preliminary~~ incomplete sintering process, is taken out, and machined and sized to a predetermined shape. Thus, this is used as the discharge processing electrode 12.

Page 22, amend the first paragraph as follows:

B8 The conditions of the above-mentioned ~~preliminary~~ incomplete sintering process are different depending on electrode materials. However, this is determined preliminarily through experiments. For example, the sintering temperature is set approximately in the range of 400 to 1100 degree centigrade.

Page 22, amend paragraph 2 as follows:

B9 In this case, it is essential not to raise the ~~burning~~ temperature in an ~~a preliminary~~ incomplete sintering process to approximately not less than 1100 centigrade. The temperatures exceeding this temperature make the electrode too hard, resulting in a problem in which in the next discharging process, the electrode material comes off irregularly due to a thermal impact caused by arc discharging, failing to properly supply discharging between the electrodes, resulting in serious adverse effects to the quality of the coat film formed on the treatment target.

Amend the paragraph bridging pages 22 and 23 as follows:

B10 Next, an explanation will be given of a formation method of the hard coat film 13. When an arc discharge is generated intermittently or continuously between the discharge processing electrode 12 and the treatment target 2, the pole-to-pole gap has a high temperature locally due to arc heat First, when an arc discharge is generated once, one portion of the electrode material comes off between the poles, and is simultaneously discharged in a powdered state by the thermal impact energy at portions of the discharge processing electrode 12 ~~preliminarily~~ incompletely sintered facing the treatment target 2. Since the pole-to-pole gap enters a high-temperature plasma state of not less than several thousands of degree centigrade momentarily, most portions of the electrode material are completely fused. The surface of the treatment target facing the electrode is also heated instantaneously at the generation position of the arc discharge, and fused in the same manner as the electrode material. At this high-temperature state, the fused

electrode material and the treatment target are mutually mixed with each other to form an alloy phase between the electrode material and the treatment target on the treatment target. Next, since the processing fluid is located in the pole-to-pole gap and in the vicinity thereof, this is abruptly cooled off, and during a cooling phase from the high-temperature state, an interface reaction between the liquid phase of the ferrous-family metal and the solid phase of the carbides or a solid-solution forming reaction between the solid phases of the carbides instantaneously occurs, thereby executing a main sintering process in an extremely short time. In this manner, a hard coat film 13 is formed on the treatment target 2. When this process is repeated, the deposition of the coat film progresses as the time elapses, thereby making it possible to form a thick film.